

Welcome to the **AUGUST 2012** edition of the WDFW Climate News Digest. The purpose of this digest is to provide highlights of relevant climate change news, events and resources for WDFW staff. Feedback or suggestions for items to include in future editions are much appreciated – many *thanks* to those who have sent links and references and please keep them coming. We are particularly interested in projects or issues you may be involved in which have a climate change component. Remember that you can find previous editions on the [WDFW Climate webpage](#).

WHAT'S HAPPENING AT WDFW?

Selected projects, agency resources and initiatives

Pacific Northwest Climate Change Vulnerability Assessment

In August, WDFW staff (Bruce Thompson and Lynn Helbrecht) assisted in a climate change workshop at the annual meeting of the Ecological Society of America. The workshop presented recent research findings from the PNW Climate Change Vulnerability Assessment (PNWCCVA), a multi-disciplinary project lead by researchers from the UW and USGS (*project description attached*). WDFW is one of the project partners. The project has a goal of developing research products on species and habitat vulnerability to climate change which will be accessible and useful to resource managers. Products will include downscaled climate data, a data base of species' sensitivity to climate change, projected vegetation shifts and projected species range changes. Research products are expected to be available by the end of the year.

Another PNWCCVA workshop is planned for August 29th, with the Arid Lands Initiative* in Ellensburg. Researchers plan to present selected data to members of ALI and work with the group to identify how the future climate data should influence the selection of spatial priorities. For more information on this workshop, please contact Lynn. For more information on the Arid Lands Initiative specifically, please contact Elizabeth Rodrick.

**The Washington Arid Lands Initiative represents a diverse assemblage of public, private and tribal interests working together to conserve and restore a viable, well connected system of eastern Washington's arid lands and related freshwater habitats, sustaining native plant and animal communities, and supporting local communities and economic development compatible with resource conservation. WDFW is a member. THE GOAL of the Washington Arid Lands Initiative is to develop and cooperatively implement a coordinated strategy for the conservation of Washington's arid lands, including Shrub Steppe, Palouse grasslands and those freshwater systems contained within the arid lands landscape.*

CLIMATE ADAPTATION AND OTHER ORGANIZATIONS

Swinomish Tribe

[This eight minute KCTS video](#) profiles the Swinomish Tribe and their interest in addressing climate change impacts. In October of 2007 the Swinomish Indian Senate issued a Proclamation directing action to respond to climate change challenges. The Proclamation acknowledged the potential for issues and impacts in the vicinity of the Swinomish Indian

Reservation and directed tribal departments and staff to undertake efforts and studies for promoting long-term proactive action. Begun in late 2008, the [Swinomish Climate Change Initiative](#) attempts to assess local impacts, identify vulnerabilities, and prioritize planning areas and actions to address the possible effects of climate change. The ultimate goal is to develop an action plan for the future based on a comprehensive study of where potential risks and impacts of are expected to occur.

LEARNING OPPORTUNITIES

The webinar titled "**Sea-Level Rise for the Coasts of California, Oregon and Washington: Past, Present, and Future**", by Dr. Phil Mote, Oregon Climate Change Research Institute is now posted: <http://www.youtube.com/watch?v=b9oDeZ3VtAQ&feature=plcp>. This 60 minute webinar described results of a report that was recently sent out by the National Research Council. You can download a pdf of the prepublication report at the NRC website for the study: <http://dels.nas.edu/Report/Level-Rise-Coasts/13389>. The finalized hardback version of the report will be available after September. The substantive content of the report will not be changed between the prepublication and the final publication. The Council also created a 5-min summary video that can be found at: <http://www.youtube.com/watch?v=-gstw44DeSI>

Climate Academy (ALC 3193): Online Course Offered by UFWFS.

This 10-month pilot course will be offered this fall starting early October. This online course is designed to cover the fundamentals of climate science, provide tools and resources for climate adaptation, and increase climate literacy and communication through online lectures, webinars, and discussions. Participants will also have the option to develop a final product (such as a report or presentation) addressing climate change in their management of natural resources. The course is developed in partnership with staff from the USFWS's NCTC, The Wildlife Society, the Association of Fish and Wildlife Agencies, AFWA's Management Assistance Team, and the National Park Service. CEUs are available through TWS. As a pilot offering, there is no tuition or registration fee associated with the course. We will be looking for input from course participants throughout the course on different aspects of the online course process. Please check the [NCTC website](#) for an official course announcement, coming soon! Or contact Danielle LaRock, NCTC Course Leader, danielle_larock@fws.gov

RESOURCES

National Research Council Releases Booklet and Video to Help the Public Gain a Better Understanding of Climate Change

The National Research Council has released a new booklet and video designed to help the public gain a better understanding of what is known about climate change. The new resources are based on a number of independent reports from the National Research Council that represent the consensus of experts who have reviewed hundreds of studies describing many years of accumulating evidence. The 36 page booklet, ***Climate Change: Evidence, Impacts, and***

Choices answers commonly asked questions about the science of climate change in three parts. Part I summarizes the current state of knowledge about climate change with evidence of climate change being observed around the world; Part II summarizes projections of future climate changes and impacts expected in this century and beyond; and, Part III examines how science can help inform choices about managing and reducing the risks posed by climate change. The booklet is downloadable online and hard copies will be available later this summer. A new video, ***Climate Change: Lines of Evidence***, follows Part 1 of the booklet and explains the lines of evidence that have built the current scientific consensus about climate change and its causes. For more information about the booklet and the video, visit: <http://nas-sites.org/americasclimatechoices/more-resources-on-climate-change/climate-change-lines-of-evidence-booklet/>

U.S. Department of the Interior Announces Tools to Expand Public Access to Critical Data for Assessing Water Availability Across the Western U.S.

[Secretary of the Interior Ken Salazar announced a new online tool for western water managers and the public to help increase accessibility of science-based information and understanding of how climate variations will impact the availability of water to communities. Projected streamflow data can be found at the Bureau of Reclamation's new website on Streamflow Projections for the Western United States. The site provides a straightforward interface to data for 195 sites on streams and rivers throughout the West. Along with additional information on the tools and official announcement are also available online.](#)

CLIMATE SCIENCE NEWS

Conversion of a Climate Skeptic

One of the most long standing critics of climate change thought, Richard A. Muller, recently wrote an article published in the NY Times opinion section. He is professor of physics at UC Berkeley, and has been funded by Charles Koch, the libertarian petrochemical billionaire, who funds groups that deny climate change. The article "The Conversion of a Climate-Change Skeptic", says now that for the entire temperature increase over the last 250 years, "humans are the cause". http://www.nytimes.com/2012/07/30/opinion/the-conversion-of-a-climate-change-skeptic.html?_r=1&pagewanted=all

Proceedings of the National Academy of Sciences Publishes Scientific Paper Online: *Perception of Climate Change*

James E. Hansen, a prominent NASA climate scientist and the head of the Goddard Institute for Space Studies, along with two co-authors, published a scientific paper this week in the Proceedings of the National Academy of Sciences. "Climate dice," describing the chance of unusually warm or cool seasons, have become more and more "loaded" in the past 30 years, coincident with rapid global warming. The distribution of seasonal mean temperature anomalies has shifted toward higher temperatures and the range of anomalies has increased. An important change is the emergence of a category of summertime extremely hot outliers, more than three standard deviations warmer than the climatology of the 1951-1980 base

period. This hot extreme, which covered much less than 1% of Earth's surface during the base period, now typically covers about 10% of the land area. The paper discusses the practical implications of this substantial, growing, climate change. To read the paper, please visit: <http://www.pnas.org/content/early/2012/07/30/1205276109.abstract>.

U.S. Geological Survey Details Effects of Climate Change on Water Availability in 14 Local Basins Nationwide

Climate change projections indicate a steady increase in temperature progressing through the 21st century, generally resulting in snowpack reductions, changes to the timing of snowmelt, altered stream flows, and reductions in soil moisture, all of which could affect water management, agriculture, recreation, hazard mitigation, and ecosystems across the nation. Despite some widespread similarities in climate change trends, climate change will affect specific water basins in the U.S. differently, based on the particular hydrologic and geologic conditions in that area. The U.S. Geological Survey (USGS) has released a [study](#) projecting changes in water availability due to climate change at the local level. So far, the USGS has applied these models to fourteen basins (including the Naches River Basin).

U.S. Global Change Research Program Makes Available Technical Input Reports to the 2013 National Climate Assessment

The 2013 National Climate Assessment, conducted under the auspices of the Global Change Research Act of 1990, will be a report submitted to the President and the Congress that integrates, evaluates, and interprets the findings of the U.S. Global Change Research Program; analyzes the effects of global change on the natural environment, agriculture, energy production and use, land and water resources, transportation, human health and welfare, human social systems, and biological diversity; and analyzes current trends in global change, both human-induced and natural, and projects major trends for the subsequent 25 to 100 years. [Technical input reports](#) that were submitted for the 2013 National Climate Assessment by March 1, 2012 have now been made available online. (See link for the Biodiversity, Ecosystems, and Ecosystem Services report in the next section below).

Researchers Document how Dam Drawdowns Contribute to Global Warming: Methane Emissions (from the Columbia Basin Bulletin)

Washington State University researchers have documented an underappreciated suite of players in global warming: dams, the water reservoirs behind them, and surges of greenhouse gases as water levels go up and down. Here's the link from the Columbia Basin Bulletin: <http://www.cbbulletin.com/422071.aspx>

SPECIES AND HABITATS

Recently Released Report on Climate Change Impacts on Biodiversity, Ecosystems, and Ecosystem Services

Over 60 contributors from federal agencies, academia, and NGOs recently released the "Biodiversity, Ecosystems and Ecosystem Services Technical input to the 2013 National Climate Assessment"

report. The report consists of seven chapters that cover the latest research and findings on climate change impacts on biodiversity, ecosystems and ecosystem services and is available on the global change website (<http://www.globalchange.gov/what-we-do/assessment/nca-activities/available-technical-inputs>).

Managed Relocation: Integrating the Scientific, Regulatory, and Ethical Challenges. The managed relocation of species is a controversial management response to climate change. The published literature has emphasized biological concerns over difficult ethical, legal, and policy issues. Furthermore, ongoing managed relocation actions lack scientific and societal engagement. An interdisciplinary team considered ethics, law, policy, ecology, and natural resources management to identify the key issues of managed relocation relevant for developing sound policies that support decisions for resource management. They recommend that government agencies develop and adopt best practices for managed relocation. Schwartz et al., 2012, *BioScience* 62: 732–743 doi:10.1525/bio.2012.62.8.6

Study identifies 'natural strongholds' for species displaced by climate change

A recent study by the Nature Conservancy analyzed more than 156 million acres of land in the mid Atlantic region, stretching from Virginia to Maine and into adjacent portions of Canada, in order to identify sites which could function as refugia or “strongholds” for species. "These strongholds will be critical to all life as the threats of climate change continue to grow," said Mark Anderson, regional director of conservation science with the Nature Conservancy. "They could serve as breeding grounds and seed banks for many animal and plant species that otherwise may be unable to find habitat due to climate change". As temperatures rise around the world, scientists believe many species will be pushed out of their long-standing habitats and into new, more challenging terrains. Areas like central Appalachia, which contain a diverse array of regions, offer the best chance that slow-moving species like plants will find a hospitable climate close by. "The kind of sites we identified were those with a complex landscape that contained a lot of micro-climates -- mountains, valleys, slopes, caves, et cetera," said Anderson. Because climate shifts quickly with elevation, such variation is most often found in mountainous sites, he noted, adding that a few dozen meters of elevation shift can offer a change of climate equivalent to several hundred miles of flatland travel.

POLICY AND MANAGEMENT - MITIGATION AND ADAPTATION

Senate Holds First Hearing about Climate Change since 2009.

On August 1, the Senate Committee on Environment and Public Works held its first hearing about the science of climate change since February 2009. The hearing, entitled “Update on the Latest Climate Change Science and Local Adaptation Measures,” was organized by Committee Chair Senator Barbara Boxer (D-CA) in response to public pressure to address climate change. The invited witnesses included Christopher Field, Professor of Biology and Environmental Earth Science at Stanford University and a lead author of the Intergovernmental Panel on Climate Change Assessment Report. In his testimony, Field highlighted the connection between extreme weather and climate change, saying, "There is no doubt that climate has changed,

there is also no doubt that a changing climate changes the risks of extremes, including extremes that can lead to disaster." The [Archived Video and other information can be found here](#)

California Governor Brown Launches *Climate Change: Just The Facts* Website to Refute Global Warming Deniers

Governor Edmund G. Brown Jr. today used the occasion of the annual Tahoe Summit to launch a new website, [Climate Change: Just The Facts](#), that documents the dangerous effects of global warming and calls on those who still deny its existence to "wake up and honestly face the facts." "Global warming's impact on Lake Tahoe is well documented. It is just one example of how, after decades of pumping greenhouse gases into the atmosphere, humanity is getting dangerously close to the point of no return," said Governor Brown. "Those who still deny global warming's existence should wake up and honestly face the facts."

http://community.seattletimes.nwsources.com/reader_feedback/public/display.php?source_id=2018917789&source_name=mbase